WHAT IS CLAIMED IS:

1. An infrared imaging device, comprising:

first and second plastic Fresnel lens elements, wherein said first and second lens elements are in optical communication with each other, and wherein each of said first and second lens elements has a first major surface which is convex and a second major surface which comprises a Fresnel surface;

wherein said first lens element is adapted to mimic a meniscus asphere correct for conjugates of infinity and for the focal length of said first lens element, and wherein said second lens element is adapted to mimic a meniscus asphere and is further adapted to act as a field flattener.

2. The infrared imaging device of claim 1, wherein said first and second lens elements are disposed in a housing, and wherein said first and second lens elements are arranged within said housing such that they are in optical communication with each other and such that the first major surface of each of said first and second lens elements faces the scene being imaged.

3. The infrared imaging device of claim 1, wherein the Fresnel surface of said first lens element comprises a series of grooves that are convex in a cross-section taken along a plane perpendicular to the second major surface of the lens element.

4. The infrared imaging device of claim 1, wherein the Fresnel surface of said second lens element transitions from a first series of grooves that are concave in a cross-section taken along a plane perpendicular to the second major surface of the lens element, to a second series of grooves that are essentially flat in a cross-section taken along a plane perpendicular to the second major surface of the lens element.

6. The infrared imaging device of claim 2, wherein said first lens element is disposed closer to the scene being imaged than said second lens element.

7. The infrared imaging device of claim 2, wherein said first lens element is disposed closer to the scene being imaged than said second lens element, and wherein the focal length of said first lens element is longer than the combined focal length of said first and second lens elements.

8. The infrared imaging device of claim 2, further comprising a focusing mechanism adapted to move the first and second lens elements toward or away from the image side of the device.

9. The infrared imaging device of claim 1, wherein said first and second lens elements comprise high density polyethylene.

10. The infrared imaging device of claim 1, wherein said first and second lens elements are adapted to operate in the 3-5 μm region of the spectrum.

11. The infrared imaging device of claim 1, wherein said first and second lens elements are adapted to operate in the 8-14 μm region of the spectrum.

12. The infrared imaging device of claim 1, wherein said first and second lens elements each comprise a material selected from the group consisting of polytetrafluoroethylene (PTFE) and polychlorotrifluoroethylene (PCTE).

13. The infrared imaging device of claim 1, wherein said first and second lens elements are arranged along a common optical axis.

14. An infrared imaging device, comprising:

first and second plastic Fresnel lens elements in optical communication with each other;

wherein said first lens element has positive power and said second lens element also has positive power.

15. The infrared imaging device of claim 14, wherein each of said first and second lens elements has a first major surface which is convex and a second major surface which comprises a Fresnel surface.

16. The infrared imaging device of claim 15, wherein said first lens element is adapted to mimic a meniscus asphere correct for conjugates of infinity and for the focal length of said first lens element.

17. The infrared imaging device of claim 16, wherein said second lens element is adapted to mimic a meniscus asphere and is further adapted to act as a field flattener.

18. The infrared imaging device of claim 14, wherein said first and second lens elements are disposed in a housing, and wherein said first and second lens elements are arranged within the housing such that they are in optical communication with each other and such that their first major surfaces face the image side of the device.

19. The infrared imaging device of claim 18, wherein said first lens element is disposed closer to the image side of the device than said second lens element, and wherein said first lens element is adapted to act as a meniscus asphere which is correct for conjugates of infinity and its focal length.

20. The infrared imaging device of claim 18, wherein said first lens element is disposed closer to the image side of the device than said second lens element, wherein said first lens element is adapted to act as a meniscus asphere which is correct for conjugates of infinity and its focal length, and wherein the focal length of the first lens element is longer than the combined focal length of the first and second lens elements.

21. The infrared imaging device of claim 14, wherein the Fresnel surface of said first lens element comprises a series of grooves that are convex in a cross-section taken along a plane perpendicular to the second major surface of the lens element.

22. The infrared imaging device of claim 14, wherein the Fresnel surface of said second lens element transitions from a first series of grooves that are concave in a cross-section taken along a plane perpendicular to the second major surface of the lens element, to a second series of grooves that are essentially flat in a cross-section taken along a plane perpendicular to the second major surface of the lens element.

23. The infrared imaging device of claim 23, wherein said second lens element is also adapted to act as a meniscus asphere, and wherein said second lens element is further adapted to act as a field flattener.

24. The infrared imaging device of claim 14, further comprising a focusing mechanism adapted to move the first and second lens elements toward or away from the image side of the device.

25. The infrared imaging device of claim 14, wherein said first and second lens elements comprise high density polyethylene.

26. The infrared imaging device of claim 14, wherein said first and second lens elements are adapted to operate in the 8-14 μm region of the spectrum.

27. The infrared imaging device of claim 14, wherein the first and second lens elements each comprise a material selected from the group consisting of polytetrafluoroethylene (PTFE) and polychlorotrifluoroethylene (PCTE).

28. The infrared imaging device of claim 27, wherein said first and second lens elements are adapted to operate in the 3-5 μm region of the spectrum.

29. The infrared imaging device of claim 14, wherein said device further comprises a structure for housing at least one of the first and second lens elements.

30. An infrared imaging lens, comprising:

first and second plastic lens elements, each of said lens elements having a first major surface which is convex and a second major surface which comprises a Fresnel surface;

wherein the Fresnel surface of at least one of the first and second lens elements comprises a series of grooves that are convex in a cross-section taken along a plane perpendicular to the second major surface of the lens element.

31. The infrared imaging device of claim 30, wherein the Fresnel surface of said first lens element comprises a series of grooves that are convex in a cross-section taken along a plane perpendicular to the second major surface of the lens element.

32. The infrared imaging device of claim 30, wherein the Fresnel surface of said second lens element transitions from a first series of grooves that are concave in a cross-section taken along a plane perpendicular to the second major surface of the lens element, to a second series of grooves that are essentially flat in a cross-section taken along a plane perpendicular to the second major surface of the lens element.

33. The lens of claim 30, wherein said first lens element is adapted to act as a meniscus asphere which is correct for conjugates of infinity and its focal length.

34. The lens of claim 30, wherein said first lens element is adapted to act as a meniscus asphere which is correct for the focal length of the first element, and wherein the focal length of the first lens element is longer than the combined focal length of the first and second lens elements.

35. The lens of claim 34, wherein the second lens element is also adapted to act as a meniscus asphere, and wherein the second lens element is further adapted to act as a field flattener.

36. The lens of claim 30, wherein said second lens element has positive power.

37. An infrared imaging device, comprising:

first and second plastic lens elements, each having a first major surface which is convex and a second major surface which comprises a Fresnel surface that comprises a series of grooves, wherein each of said grooves is aspherical in a cross-section taken along a plane perpendicular to the length of the groove;

a chassis which supports said first and second lens elements in a fixed orientation with respect to each other along a longitudinal axis;

a mechanism adapted to adjust the distance between the first and second lens elements along the longitudinal axis; and

a focal plane array detector;

wherein said first and second lens elements are arranged within said chassis such that they are in optical communication with each other and such that their first major surfaces face away from the focal plane array detector.

38. The infrared imaging device of claim 37, wherein each Fresnel surface of each of said first and second lens elements comprises a series of grooves that are convex in a cross-section taken along a plane perpendicular to the second major surface of the lens element.

39. The infrared imaging device of claim 37, wherein said second lens element is disposed closer to the focal plane array than said first lens element, and wherein said first lens element is adapted to act as a meniscus asphere which is correct for conjugates of infinity.

40. The infrared imaging device of claim 37, wherein said first lens element is disposed farther from the focal plane array than said second lens element, wherein said first lens element is adapted to act as a meniscus asphere which is correct for conjugates of infinity and its focal length, and wherein the focal length of the first lens element is longer than the combined focal length of the first and second lens elements.

41. The infrared imaging device of claim 40, wherein said second lens element is also adapted to act as a meniscus asphere, and wherein said second lens element is further adapted to act as a field flattener.

42. The infrared imaging device of claim 40, wherein said second lens element has positive power.

43. The infrared imaging device of claim 40, wherein said first and second lens elements comprise high density polyethylene.

44. The infrared imaging device of claim 43, wherein said first and second lens elements are adapted to operate in the 8-14 μm region of the spectrum.

45. The infrared imaging device of claim 37, wherein said first and second lens elements each comprise a material selected from the group consisting of polytetrafluoroethylene (PTFE) and polychlorotrifluoroethylene (PCTE).

46. A method for making an infrared thermal imaging device, comprising the steps of:

shaping first and second lens elements from a softened polymeric composition such that said first and second lens elements each have a first major surface which is convex and a second major surface which comprises a Fresnel surface that contains a series of grooves, each of which is aspherical in a cross-section taken along a plane perpendicular to the length of the groove; and

disposing the first and second lens elements in a housing equipped with a focal plane array such that said first and second lens elements are in optical communication with each other and have their first major surfaces facing away from the focal plane array.

47. The method of claim 46, wherein the first and second lens elements are molded from a molten polymeric composition.

48. The method of claim 46, wherein the first and second lens elements are molded from a thermally softened polymeric composition.

49. The method of claim 46, wherein the first and second lens elements are cast by thermally, optically, or chemically catalyzed polymerization.

50. An infrared imaging device, comprising:

first and second plastic Fresnel lens elements in optical communication with each other, wherein each of said first and second lens elements have positive power;

a chassis which supports said first and second lens elements in a fixed orientation with respect to each other along a longitudinal axis;

a mechanism adapted to adjust the distance between the first and second lens elements along the longitudinal axis; and

a focal plane array detector.

51. The infrared imaging device of claim 50, wherein said first and second lens elements are arranged within said chassis such that they are in optical communication with each other and such that their first major surfaces face away from the focal plane array detector.